



Attorney Docket No.: 5443.424-US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Cherry et al.

Confirmation No: 7060

Serial No.: 09/607,142

Group Art Unit: 1631

Filed: June 29, 2000

Examiner: Mahatan, C.

For: Maltogenic Alpha-Amylase Variants

**AMENDMENT UNDER 37 C.F.R. 1.116**

**BOX AF**

Commissioner for Patents  
Washington, DC 20231

Sir:

In response to the Office Action mailed February 14, 2002, please amend the above-identified application as follows (a marked up version pursuant to 37 C.F.R. 1.21 is attached hereto):

**IN THE CLAIMS:**

Please substitute the following amended claims for the pending claims having the same claim numbers:

5. (Twice Amended.) A method of constructing a variant of a parent maltogenic alpha-amylase, wherein said parent maltogenic alpha-amylase has an amino acid sequence which is at least 70% identical to amino acid residues 1-686 of SEQ ID NO:2, which method comprises:

- a) modeling the parent alpha-amylase on the three-dimensional structure of amino acid residues 1-686 of SEQ ID NO:2 depicted in the Appendix to produce a three-dimensional structure of the parent alpha-amylase;
- b) identifying an amino acid residue which is within 15 Å from an active site residue of the parent amylase in the three-dimensional structure of said parent, and which is involved in electrostatic or hydrophobic interactions with an active site residue;
- c) substituting said amino acid residue with another amino acid residue which changes the electrostatic and/or hydrophobic surroundings of an active site residue, and which can be accommodated in the structure;
- d) optionally repeating steps b) and c) recursively;

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E. Williams  
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